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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.          | CONFIRMATION NO.       |
|---|-------------|----------------------|------------------------------|------------------------|
| 10/557,696  | 11/22/2005  | Karlheinz Bartzke    | P70852US0                    | 7897                   |
| 136 7590 11/08/2007<br>JACOBSON HOLMAN PLLC<br>400 SEVENTH STREET N.W.<br>SUITE 600<br>WASHINGTON, DC 20004 |             |                      | EXAMINER<br>DOAK, JENNIFER L |                        |
|   |             |                      | ART UNIT<br>2872             | PAPER NUMBER           |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/557,696

Applicant(s)

BARTZKE ET AL.

Examiner

Jennifer L. Doak

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: English Abtr. JP 01-102928

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bagby (US 3082674) in view of NEC Corp (JP 01-102928; English Abstract included) in further view of Lee (US 6071426).

Regarding Claim 1, Examiner makes the following findings of fact: Bagby discloses an adjustable pinhole, the adjustable pinhole comprising: first (Fig. 1: 44) and second (45) apertures movable relative to each other (Figs. 1 and 2), each of said apertures having a rectangular opening (Fig. 2); and the relative movement of the apertures defining a pinhole of varying size (Figs. 1-2). Bagby does not disclose that the aperture openings have flanks etched at an acute angle, the rectangular openings being arranged with the flanks thereof mirror-inverted relative to a mirror plane between the first and second apertures. Further, Bagby does not teach that the adjustable pinhole is for a laser scanning microscope or that the apertures are silicon. Bagby and NEC Corp are related as apertures. NEC Corp teaches that the aperture openings have flanks etched at an acute angle (i.e., blade-shaped parts 11 and 12; front-page (of Abstr.) figure, and Figs. 2 and 4), the rectangular openings being arranged with the flanks thereof mirror-inverted (Figs. 2, 4, and front of Abstract) relative to a mirror plane between the first and second apertures (i.e., edges). The benefit of the bladed or acutely angled edges for an aperture is that these edges reduce diffraction of the light passing through.

Therefore, Examiner concludes that it would have been obvious to an ordinarily skilled artisan at the time of invention to bevel/angle the edges toward the center of the pinhole in a mirror-reflecting manner so as to reduce diffraction on the edges of the pinhole.

Examiner additionally finds the following facts: the Bagby-NEC Corp combination does not teach that the apertures are silicon or the adjustable pinhole is for a laser scanning microscope. The Bagby-NEC Corp combination and Lee are related as being directed to pinholes. Lee teaches that pinholes can be made of silicon (Abstr.). Silicon is known in the art

to have a particular crystalline structure, such that removal of unwanted material can leave an extremely sharp edge, and it is a very cheap material.

Therefore, Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of invention to make the pinhole out of silicon, since it would form a very sharp edge for the angled part, and it would be inexpensive.

With respect to presence of the claimed pinhole in a laser scanning microscope, it is first noted that the recitation laser scanning microscope has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In the alternative, Examiner makes the following findings of fact: It has been long established that pinholes are used in cameras, laser scanning microscopes, and many other various optical systems. Pinholes provide higher resolution to these systems. As shown above, the prior art contains comparable devices (i.e., cameras with pinholes or pinholes, generally) improved in the same way as the invention (i.e., laser scanning microscope with a pinhole with angled edges within the aperture). Thus, applicant's improvement was known. Pinholes, being commonly used in the art, in many devices, an ordinarily skilled artisan would have known their use and could have applied a known improvement to them into a variety of different optical systems all known to use pinholes, including laser scanning microscopes. An ordinarily skilled

artisan would have recognized that these results were predictable: in this case, that an angle-edged pinhole aperture could reduce diffraction and be placed in almost any optical system using a pinhole element, such as a laser scanning microscope, *In re Nilssen*, 7 USPQ2d 1673 (Fed. Cir. 1988).

Therefore, Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of invention to have used the pinhole of the aforementioned combination in a laser scanning microscope, since it would have made use of a known technique to improve similar devices in the same way.

Regarding Claims 2 and 3, the aforementioned combination further discloses that the first and second silicon apertures are displaceable with respect to one another in a first direction (Bagby, Figs. 1 and 2; NEC Corp, Fig. 4 (c)); at least one of said silicon apertures is displaceable in a second direction perpendicular to the first direction for adjustment to obtain an exact square form for the configuration of the pinhole (NEC Corp., Fig. 4).

Regarding Claim 4, the aforementioned combination further discloses flexible solid joints (Bagby Fig. 1: 31, 32, 50, 51), which are arranged in a rigid manner in the first direction (i.e., vertically) and are flexible in the second direction (i.e., horizontally, via 50 and 51), wherein the apertures are fastened (via 35 and 36) on the flexible solid joints.

Regarding Claim 5, all the elements of claim 1 as discussed above and discloses by the combination, are hereby incorporated, and the combination further discloses passing light through the pinhole to the photo-receiver; acquiring a signal of the photo-receiver; and moving at least one aperture in dependence of the signal until the signal is maximal. It is notoriously well known in the art to pass light through a pinhole to a photo-receiver, acquire a signal, and make

adjustments to maximize the signal. Examples of the foregoing include: Goldstein (US 4827125), Nishiwaki (US 5343038), Haraguchi (US 5355252), Shionoya (US 5389783), and Bille (US 4732473).

### *Response to Arguments*

Applicant's arguments filed 08/30/07 have been fully considered but they are not persuasive. Applicant argues that neither Bagby nor Lee teaches acute-angled flanks; Bagby does not address the finding of a square pinhole; that it is impossible for the pinholes of Lee to be of the larger size of Applicant's pinhole.

However, it is first noted the new combination teaches the acute angled flanks. Moreover, it is noted that generally known in micro-fabrication techniques with anisotropic etching generally produces an angle of 54°, which is acute. Second, Bagby's pinhole is shown as square in Figs. 1 and 2, and, alternatively, it is noted that NEC Corp. shows the ability to make that adjustment in Fig. 4(c). Third, Applicant is mistaken that the technique of Lee is impossible to fabricate a larger pinhole. Examiner notes that one of ordinary skill would know that the size of the etching is almost strictly time-dependent. If Applicant believes that a larger fabrication size is impossible under Lee, Applicant is invited to submit evidence to support that position.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**


MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Doak whose telephone number is 571-272-9791. The examiner can normally be reached on Mon-Thur: 7:30A-5:00P, Alt Fri: 7:30A-4:00P (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JD  
11/1/07

  
Stephone B. Allen  
Supervisory Patent Examiner